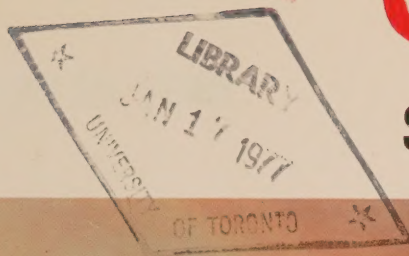


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Ecotour

of the Trans-Canada Highway

Sault Ste. Marie – North Bay





About this Map

"Ecotours" covering various parts of the Trans-Canada Highway have been devised by the Canadian Forestry Service to help you understand the natural and human history that has shaped and is still shaping the landscape you see as you travel. The route covered by this Ecotour has been divided into ecologically distinct zones; each is introduced with a brief description of its general character. Several interesting features are identified in each zone and most of them can be seen without stopping. A few stops have been mentioned as interesting travel breaks, and detours are described should you be spending some time in the area. We suggest that you read the Introduction to your route as a preliminary to the journey. Keep an eye on distance travelled; mileages between points of interest are given on each page. There is a list of suggested reading for this route at the end of the brochure.

For further information contact:

Public Information Unit
Canadian Forestry Service
Department of the Environment
Ottawa, Ontario K1A 0H3

Great Lakes Forest Research Centre
Department of the Environment
P.O. Box 490
Sault Ste. Marie, Ontario P6A 5M7

Petawawa Forest Experiment Station
Chalk River, Ontario K0J 1J0

Cette publication est disponible en français sous le titre
"Ecotour de la route transcanadienne:
Sault Ste. Marie—North Bay"

An introduction to your route

The route from Sault Ste. Marie to North Bay is one of the most interesting on the entire Trans-Canada Highway. Along it you will see relics of the ice age, a variety of forests, vistas of great beauty and landscapes of desolation. You can find the world's largest freshwater island and third largest freshwater lake, and industrial enterprises of immense proportions and of global importance. But above all you will find the Shield, that massive complex of Precambrian rock that forms half of Canada's landscape.

The Shield was formed in several convulsions of the earth's crust, the last of which occurred a billion years ago. The mountains thus built have long since disappeared, worn away by erosion. The past million years have seen several ice ages, which were themselves periods of intense erosion. Flowing slowly but relentlessly southwards the ice gouged out softer and younger rocks overlying southern parts of the Shield to form the basins of the Great Lakes. The sheer weight of ice, sometimes two miles thick, depressed the earth's crust like a mattress.

When the ice front receded about 9,000 years ago, it left a very large lake, the Nipissing Great Lake. It was higher than any of the present Great Lakes, embracing them all and the present Lake Nipissing. It drained *eastwards*, from North Bay into the Ottawa River. The huge lake was fed by melt water from ice to the north and became the settling tank for a variety of materials, the finest of these being rock "flour". Without its burden of ice the land began to heave up ("post-glacial rebound") causing the Nipissing Great Lake to drain *southwards* and ultimately to form the Great Lakes as we know them today. The deposits of rock flour remain as clay, lining the bottoms of valleys. Draped across the land were a variety of coarser materials including rocky and often shallow till soil, river-washed sands and gravels and odd-looking boulders—"erratics"—dumped far from their bed-rock. It is these glacial remnants that give us clues to the movement of ice, melt-waters, and the earth's crust.

The landscape did not remain barren for long after the ice had retreated. Hardy pioneers such as spruce were quick to colonize the land, within sight of the ice front. Other species followed in succession as the climate became more amenable and as soil conditions improved. The variety of glacial soils and proximity of Lake Huron, with its moderating influence on climate and its large islands of limestone, led to considerable diversity that is evident along this route. The forests were a compromise between southern hardwoods, pushed north-west on outliers of the Niagara Escarpment, and the northern boreal forest and form what is known as the Great Lakes—St. Lawrence Forest Region.

Thus the scene was set for that great performer, man. Surprisingly, he was here before the last retreat of ice, as you will discover on Manitoulin Island. But it was Europeans who wrought changes. Lured westwards by furs and by potential allies and Christians among the Indians, they settled the land and began to realize its wealth. Lumbering was executed on a huge scale and helped establish Canada as one of the world's greatest trading nations. A series of lucky strikes unearthed even greater prizes—the minerals of the Shield. And as if this was not enough the Shield has become a significant source of energy, both nuclear and hydro-electric. That it cradles the world's greatest supply of clean, fresh water is almost forgotten. All these you can see on this route and you will also see how the environment, especially the forest environment, responds when man exploits these resources.

Tourist information bureaus along the route and its detours have information on accommodation, recreation and places of historic interest, while museums and provincial offices, particularly the Ontario Ministry of Natural Resources in North Bay, Sudbury and Sault Ste. Marie, offer detailed information on geology, archaeology, natural history, industrial tours, etc. in the locality.

Drive carefully and enjoy your land.



The highway passes along a narrow strip of low-lying land, between Shield bluffs to the north and the north channel of St. Mary's River. The route stays on one of several terraces eroded from thick beds of clay at former levels of the Great Lakes. Terrace edges mark earlier shorelines and cause abrupt changes in street levels of "the Soo". Underlying the clays of this zone is the Shield's youngest rock, the Jacobsville Sandstone. Blocks of this attractive stone appear in many of the city's buildings; an outcrop of the formation underlies rapids on St. Mary's River. The zone includes residential, commercial and industrial land; the remainder is part of the Garden River Indian Reserve. Don't expect to see shipping from the highway—lake traffic uses a deeper channel west of Sugar Island.

Jacobsville sandstone provided fine building material



River Terrace

(Sault Ste-Marie-Echo Bay: 16 miles or 26 km)

1. Sault Ste. Marie takes its name from the rapids on St. Mary's River. "The Soo" is a young community, despite its established appearance and its long-standing business with Great Lakes traffic negotiating the rapids. It was not until the Shield's first pulp mill was built here in 1896 that a sizeable community developed. Again, the rapids were significant, for their head of water provided hydroelectric energy for the industry. Power production increased in 1918 to supply a new enterprise—steel. Ever since, steel, manufactured from iron ore shipped in from Wawa and the USA, has been the city's chief industry; it employs 10,000 people.

St. Mary's River is one of the world's busiest shipping routes. Canada completed its own lock in 1895, but most shipping now uses the USA locks; the largest laker afloat, "Stewart J. Cort", has a beam of 105 feet, nearly twice as wide as the Canadian lock. A dam, built under the International Bridge to assist navigation, enables the Lake Superior Board of Control to regulate the discharge of Lake Superior. It is an unenviable responsibility, for Lakes Huron, Michigan and Superior are all filled to capacity and all have industrial and residential developments on their flood plains. The fishery of the rapids is also affected by flow controls. In environmental manipulation, solutions frequently create new problems.

The lock area is interesting historically, and offers good viewing of the lock and its emergency dam, the steel works, pulp mill and hydro-electric plant. There can be good bird watching here too, for many migrants, especially warblers, cross the Lakes at this point. Bellevue Park, 2.5 miles east, guarantees a view of Canadian wildlife, and has an excellent Marine Museum. Nearby is the Great Lakes Forest Research Centre of the Canadian Forestry Service. Also located on the Soo waterfront are the Sea Lamprey Control Centre and a very large Provincial Air Service.

8 miles

2. The Garden River Indian Reserve has its own reforestation project and sawmill, both visible from the highway. How well do you know your trees? Planted along the highway are, from west to east, jack pine, red pine, white pine, balsam poplar, white spruce, and more red pine. This little test starts 0.5 mile east of Root River and finishes 1.4 miles east of Garden River.

3 miles



Hills and Vales

(Echo Bay-Bruce Mines: 28 miles or 45 km)

A patchwork of agriculture and forest characterizes this zone. Agriculture is centered on beef cattle although there is a thriving dairy industry on the fertile sandy clays around Bar River. The forest cover is mostly confined to the hilltops, with sugar maple and yellow birch as the major species. The hardwoods, common along this narrow belt adjoining the North Channel, reflect the milder climate around Lake Huron.

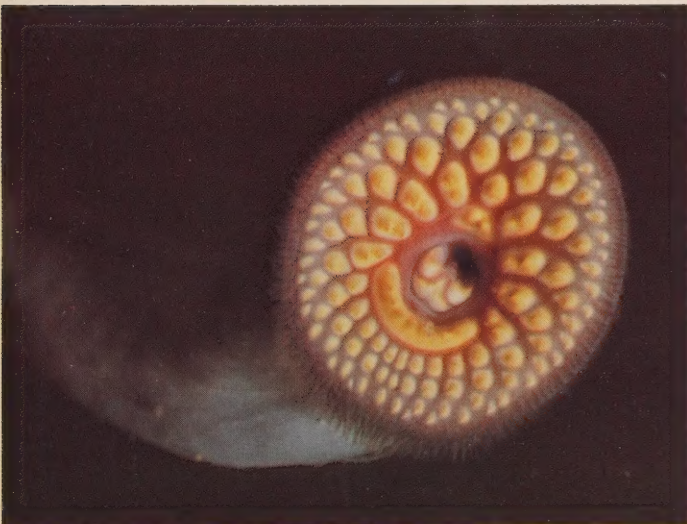
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3. Garden River is an important spawning ground of the sea lamprey, a parasitic eel-like creature that attacks deep-water fish. Lamprey entered the upper Great Lakes following the opening of the Welland Canal. Until then, Niagara Falls had prevented the upstream movement of lamprey from Lake Ontario. The result was catastrophic: a 15 million-pound annual catch of lake trout crashed to nothing. A joint Canadian-U.S. research programme identified the spawning streams (there are forty-nine on the Canadian side of Lake Huron). Then a selective "lampricide" was applied to each stream. Treatment of Lake Huron began in 1967, with immediate and remarkable results. Though far from stable, the Great Lakes fishery has improved enormously since that time.

17 miles

3

Mouth parts of a sea lamprey



4. More gifts from the ice-age: a pottery here has been using local clay for several decades. Clay is finely-ground feldspar, a mineral that makes up more than half the earth's crust. Man's early discovery of ceramics with this ubiquitous material has given us valuable clues to our origins and cultural evolution.

5 miles

5. When sand is deposited along shorelines it is rippled by waves. Fossilized ripples formed by a sea some 2½ billion years ago are exposed in this well-marked rock cut. Such sites are precious records of our planet's history and deserve care and protection.

1 mile

6. Desbarats River finishes in a freshwater estuary on Lake Huron. Estuaries are among the most productive and ecologically important areas in the world; their protected shallows, flushed with nutrients from the land, serve as breeding and nursery grounds for many creatures. Kensington Point Road, a mile east of Desbarats, offers a good chance of seeing ospreys, marsh hawks and waterfowl in the estuary.

8.5 miles

7. The first mine (copper) on the Canadian Shield operated at Bruce Mines from 1846 till 1876. Bruce Mines is also known for its museum and its colony of double-crested cormorants. These and other fish-eating birds of the Lakes carry contaminants sufficient to threaten continued existence; the worst are DDT, from agriculture, and PCBs (polychlorobiphenyls) used by electrical industries. Governments and industries have curtailed their use, but bird populations may still be in trouble.

13 miles



St. Joseph Island Detour

(Round trip total: 68 miles or 109 km)

Had enough of the Shield? Try St. Joseph Island, a 220-square mile plug in the St. Mary's River. This is the tail of the Niagara Escarpment whose rocks date back 450 million years; like Manitoulin Island, its climate is moderated by Lake Huron, and its hardwood forests (and grey squirrels) are reminiscent of southern Ontario. The most common trees, maple and beech, are cut locally for furniture and railway ties; the island also has a reputation for maple sugar.

Until recently this island has been accessible only by ferry and has remained essentially rural. The new bridge, linking it with the north shore, may change the picture, for Sault Ste. Marie is now less than an hour's drive away.

12 miles (From Hwy 17)

D1 This is the place to see ships, for Sailor's Encampment lies on the narrow west-bound lane of lake traffic. Many of the ships are lakers, characterized by their straight hulls (to fit canals and locks) and central, clear decks.

D1



The wheelhouse is placed where it is needed for lake navigation, up front. Lakers carry a variety of materials, including iron ore, cement, coal, grain and manufactured goods.

22 miles

D2 Fort St. Joseph, built in 1796 to protect fur trading, was the base for the first successful assault by the British into American territory in 1812. The Americans got their own back and destroyed the fort in 1814. As one of Canada's National Historic Sites, the site is magnificent and worth a visit. The route is well marked across the island, and will take you through farming and forest land, and a Canadian Wildlife Service refuge for migratory birds.

D2



Clay Belt

(Bruce Mines-Blind River: 49 miles or 79 km)

Deposits of clay between Bruce Mines and Blind River attracted farmers in the early days of settlement. Unlike clays in the western plains of the Prairie Provinces, these deposits are patchy, poorly drained, and, coupled with the harsh climate, have not produced a flourishing farming industry; abandoned farms, colonized by aspen suckers and spruce seedlings, are reverting to forest and can be seen throughout this zone. Overpopulation of the much larger clay belt in northern Ontario led to great hardship for thousands of settlers—for the same reasons.

The forest is predominantly hardwood, reflecting the moderating influence of the Lake. But a few miles north are forests that once supplied the massive North Channel lumber industry. The forest industry had a lasting effect on wildlife in this region. Caribou once ranged this far south, but were forced northwards as their principal food, lichen, disappeared with the ancient pine forests. Their place has been filled by deer and moose, moving northwards to exploit the new forests.

Another industry of the north shore is fishing. The North Channel fishery, operating through small ports such as Thessalon and Blind River, yields 20 percent of the total lake catch of about two million pounds annually. Half the catch is whitefish, with yellow perch, suckers, walleye and others making up the rest. But the appearance of lamprey and small but prolific alewife and recent introductions of rainbow trout, splake (a cross between speckled and lake trout), coho, chinook and kokanee salmon have caused massive ecological disturbance in Lake Huron. Trout and salmon are becoming increasingly important for sports fisheries.

8. A product of the great lumber drive, Thessalon has retained a forest-based industry. White pine and hardwoods such as maple and yellow birch are processed for furniture and plywood construction; waste wood is chipped and sent by rail to be pulped in Espanola. Just north of Thessalon is the Kirkwood Management Unit, a forest managed by the Ontario Ministry of Natural Resources.

6 miles

9. The countryside is strewn with materials carried by the last ice-sheet and its rivers. A rise in the land here marks a sand and gravel deposit. Watch out for gravel trucks!

16 miles

10. Hydraulic power was Ontario's traditional source of electrical energy until the 1950's. But large volumes of water are still needed to cool the fossil fuel and nuclear power stations of today. Small wonder the Lakes are under scrutiny; indeed, a possible site for a new nuclear energy plant is Dean Lake, just across the river. The location has advantages, including low population and industrial development, and good geological conditions.

8 miles

11. The Mississagi River, once the artery of Blind River lumber industry, now serves man with one of his greatest needs: energy. By and large it is the long, north-flowing rivers of the Shield that offer hydro-electric energy potential. Though comparatively short, the south-flowing Mississagi is both fast and accessible, and carries four generating stations. Together they yield more than half as much energy as the combined Abitibi and Mattagami stations near James Bay—almost half a million kilowatts.

6 miles

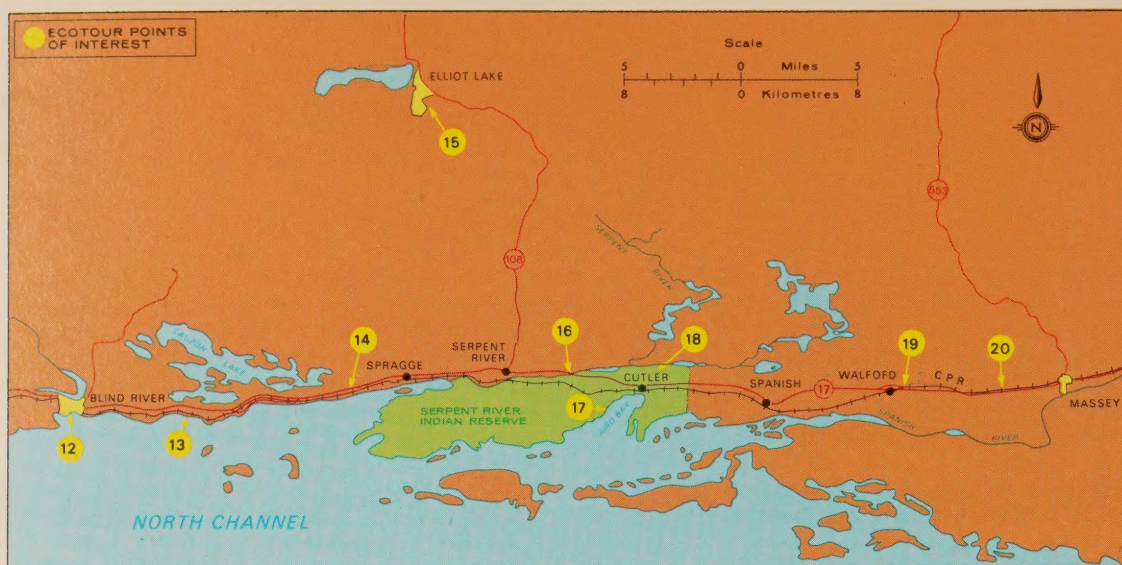
Even today, oats are stooked in this area



8

Loading the chip wagon





Murray Fault: Lakeshore Zone

(Blind River–Massey: 45 miles or 72 km)

Contortions in the Earth's crust some two and a half billion years ago pulled the rocks of this zone into an east-west alignment. The alignment is parallel to the Murray Fault, a 100-mile fracture close to the highway. Much later, east-west troughs, reamed out by glaciation, filled with clays during higher lake levels. The result is a relatively easy but monotonous passage for the highway and railway, as they take advantage of flat lake-bottoms between parallel rocky ridges. Few farms are prosperous, their fields often close to swampy ground, with black spruce and alder encroaching the wettest areas. On the drier ridges above is a mixture of forest trees, with more white pine and trembling aspen, but fewer maple and yellow birch as the highway moves away from the Lake.

12. Blind River and lumber: the two are almost synonymous, for here was the greatest sawmill enterprise eastern Canada has ever seen. A copper mining venture at Bruce Mines started it all in 1853. Since then, the fortunes of Blind River have been carried on the economic and political tides of Canada, the USA and the rest of the world. The zenith was reached in 1929, when over a million logs were cut from the pine forests to the north; nearly three thousand men and a thousand horses were at work that year.

In 1948, fire devastated 650,000 acres of forest serving the mill; the mill closed twenty years later. But the end of the great pine saga was inevitable and only hastened by the fire. The burned areas are already well

stocked with young trees, especially pines that rely on periodic fires for regeneration. But forests have to be managed for sustained yield if the economic plight of communities like Blind River is to be avoided.

Take a nostalgic trip south of the town to the immense lumber yard. And don't forget the museum, rich in logging history.

5.5 miles

13. Red oak is predominant on this exposed rocky ridge. It is one of the hardiest of Ontario's nine species of oak and is a valuable tree for furniture and floors. The wood of white oak, from southern Ontario, is much more resistant to decay and is used for boats and barrels.

6.5 miles

14. The discovery of uranium at nearby Pronto Mine led to a great uranium stake-out in the 1950's that revealed the Elliot Lake deposits. The mine entrance is visible from the highway.

7 miles

12

The old lumber yard, Blind River





The source of uranium

15

15. (Follow Hwy 108 for 16 miles) Elliot Lake, one of the world's main sources of uranium, is a modern pioneer town, built for people as well as profit. The townsite is carefully laid out, and not at all reminiscent of earlier pioneer towns. Elliot Lake looks forward to the increasing importance of uranium in meeting the world's energy needs. The source of the element is a conglomerate of quartz pebbles formed in a major period of erosion and deposition about 2½ billion years ago.

Head for the Mining and Nuclear Museum for displays on geology, mining, energy technology, and local wildlife. Information on mine tours can also be obtained here. There are fine canoe routes in the area; for scenic road routes, travel on Hwy 108 and 639, then south on Hwy 546 to Hwy 17.

3 miles

16. If you are a photographer, try capturing the azure blue Serpent River. There is a picnic area at the bridge.

3 miles

17. Travelling west, you will get your first glimpse of the North Channel at Aird Bay, a beautiful inlet within the Serpent River Indian Reserve. The barren foreground tells another "paleface" story: this was the site of an acid plant, built to serve the uranium industry of Elliot Lake. The area has been tidied since the plant's closure, but raw sulphur remains as a yellowish crust.

2 miles

18. Serpent River Indian Reserve is one of eight reserves passed between Sault Ste. Marie and North Bay. Originally nomadic, Indians would congregate only for events such as sugaring time and the wild rice harvest. By contrast, today's Indian is sedentary, often living wholly on the reserve, perhaps working in some distant pulp mill. But there is a movement towards greater self-sufficiency; Serpent River Reserve operates a sawmill and draws raw material from its own land.

9 miles

19. Sand carried by glacial rivers was blown by wind to form a large dune-like formation just here; local inhabitants have used the deposit as a source of building sand. South of the highway you may notice a farmer's scheme for water conservation, an unusual sight on the Shield.

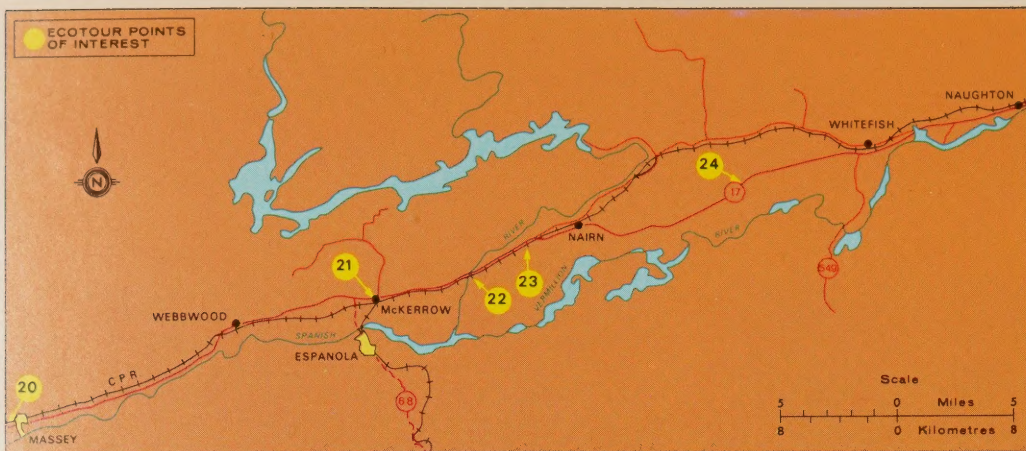
7 miles

20. An archipelago in dry dock! Just west of Massey the highway passes through a group of "islands", set in a flat plain. Like those in Georgian Bay, these rock outcrops were once real islands, dotting a much-enlarged Lake Huron. As water receded, the islands were left in a lake bottom of clay, silt and sand. The Pioneer Museum at Massey has a good display of local Indian and logging history.

18 miles

17





Murray Fault: Inland Zone

(Massey—Naughton: 48 miles or 77 km)

This zone resembles landscape between Blind River and Massey, except that the influence of Lake Huron has virtually disappeared. White pine is prominent on the ridges, standing head and shoulders above its hardwood neighbours; the species dwindles rapidly about 20 miles east of McKerrow. Look for the soft-textured branches, sweeping out as arms from an erect trunk. White pine is fussy about conditions for growth and regeneration, and is a good indicator of environmental well-being in this zone.

21. A branchline of the CPR slips off southwards almost surreptitiously behind the station at McKerrow. The line is important, for it links Sudbury with Little Current and the Great Lakes, the supply route for coal and the export route for much of its produce. It also links the Sudbury smelters with their supply of quartzite flux in the LaCloche Mountains.

4.5 miles

22. Spanish River was among the first northern streams to be tapped for hydro-electric power, to become polluted, and to have its pollution investigated. Related to all three was the establishment of a pulp mill at Espanola in 1905. Fortunately for local people, pollution has diminished in recent years.

3.5 miles

23. Much of the level ground south of the highway has been planted with red pine, a favourite with foresters for many years because it is so easy to establish and grow. Nobody planted all those aspens, however. They have grown as suckers from roots of an earlier stand. As pioneer species, aspens frequently benefit from man-made disturbances in the forest.

9.5 miles

24. A black spruce stand has developed in the low swampy area of an old lake bed. Black spruce fares better than most species in such sites because it can tolerate water-logged soils and their low oxygen content. Black spruce is valuable as pulpwood; its long wood fibres make excellent tissue papers and newsprint.

19.5 miles

Mugshot of a glacial groove



D1





With an area of 1588 square miles, “The Manitoulin” is the world’s largest freshwater island. It forms a climatic and geological extension of southern Ontario. Unlike St. Joseph Island, Manitoulin Island was left with little glacial debris. As a result, the soils are generally too shallow for cultivation; the principal agricultural product is beef. Forests here are predominantly hardwood, with an abundance of sugar maple.

Highway 68 crosses a variety of Pre-Cambrian rock formations. The most dramatic are the white quartzite LaCloche Mountains that line the north-east corner of Georgian Bay. Their unique scenery was a favourite of A.Y. Jackson and other members of the Group of Seven, artists who were interpreting Canadian landscape long before Environment Canada!

13.5 miles from Hwy 17

D1 Willisville Lookout. A steep trail to the fire tower will reward you with magnificent views across Georgian Bay, Manitoulin Island and the Bay of Islands. The white quartzite underfoot is hard, impervious, infertile and chemically inert; it lacks the neutralizing action of porous, calcarious limestones. Lakes on such rock are exceptionally vulnerable to pollutants.

10 miles

D2 Just visible over trees to the east are huge silos of a cement depot. The depot produces cement from local limestone and stores cement imported by ship. Coupled with a deep-water port developing on nearby Little

Manitoulin Island Detour

(Round trip total: 170 miles or 273 km)

Cloche Island, the complex will have a dramatic effect on this previously undeveloped corner of Georgian Bay.

11.5 miles

D3 Eastern white cedar abounds on limestone flats and provides farmers with poles for the traditional cedar fence seen here. On Indian advice, Jacques Cartier and his crew ate cedar to cure scurvy—200 years before James Cook solved the problem on long sea voyages.

4 miles

D4 Sheguiandah is the site of one of the oldest human habitations in North America, a “factory” for quartzite tools dating back before the final retreat of ice. The story is in Howland Centennial Museum, in Sheguiandah.

4 miles

D5 Ten Mile Point offers a magnificent panorama of Georgian Bay. The LaCloche developments can be seen in the distance.

28 miles

D6 The changing Huron fishery is studied from the provincial Fishery Research Station near South Bay Mouth; visitors can see a display of research activities.

10 miles

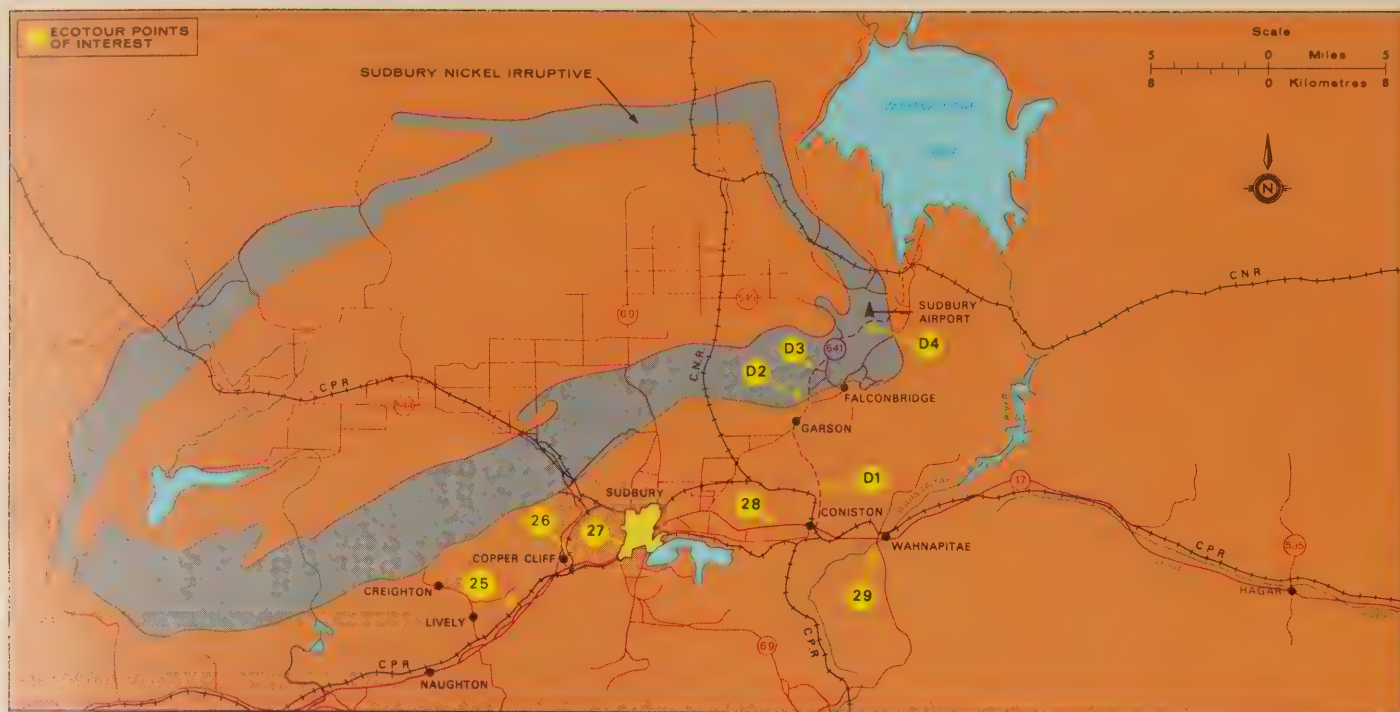
D7 Larger lakes of the island offer a variety of fishing, and their outlets are both fishing and spawning streams for Lake Huron’s new salmonids—rainbow trout, chinook, coho and kokonee salmon. Sandfield’s hatchery rears fish for provincial restocking programmes.

21 miles

D8 Sand dunes of Providence Bay and Carter Bay, bound by tough roots of pioneer grasses and shrubs, protect recreational developments behind. Dune buggies, fire and feet destroy the plants, however, leaving the dune vulnerable to “blowouts”. Unique floras develop within the dunes and are even more sensitive to disturbance; only remnants of such vegetation occur at Providence Bay.

15 miles

D9 West of West Bay are the Bridal Veil Falls at Kagawong, a museum and cliff walk at Gore Bay, and another museum and waterfowl sanctuary at Meldrum Bay.



Industrial Zone

(Naughton—Hagar: 42 miles or 66 km)

Geologically, the Shield has remained fairly stable since Precambrian times; ecological stability in this zone is another matter. Instead of fine stands of white and red pine and shade-tolerant hardwoods we see pioneer species—white birch, trembling aspen, jack pine—all indicating a disturbed landscape.

In 1883, a blacksmith named Tom Flanagan noticed some unusually stained rock while working on the new CPR line; it was copper. A rush of prospecting followed, revealing a massive ore body called the Sudbury Basin. The discovery had grave repercussions on the landscape. The forest was already being systematically cut for lumber; prospectors burned off the remaining debris, vegetation and humus to expose the rock beneath. What was not burned was cut to fuel huge roast beds, then the first stage of smelting. Clouds of sulphur dioxide drifted across the landscape, and turned rain into weak sulphuric acid.

The devastation was complete by 1930. Even with subsequent improvement in smelting, heavy metal residues and sulphur dioxide still impeded revegetation. And another factor had entered the scene—erosion. There was little or no plant cover to hold the soil. Bedrock was exposed while streams filled with mud and silt.

The forest cover deteriorates rapidly as you enter the zone, starting with the disappearance of white

pine and culminating in a moon-like landscape near Coniston. But there are signs of improvement: new plantings of spruce, Carolina poplar and grasses selected for such sites can be seen in the core of the zone. And white birch and red maple have never completely given up the struggle. The great smoke stack, dominating the landscape, appears to be restoring the local environment; even pollution-sensitive lichens have reappeared. But it may be creating new problems further afield.

There is cause for neither complacency nor despair in Sudbury. Here, in sharp focus, are the questions and conflicts facing man today as he grapples with his needs and aspirations, his resources and environment.

25. An immense quantity of material has been excavated from the Sudbury rocks in the past 90 years, and a large proportion has been discarded as tailings. Revegetated slopes of tailings border the highway for several miles.

2 miles

26. The huge smoke stack both reduces and disperses noxious wastes of the Copper Cliff smelters. Its height, 1250 feet, is impressive, but think of miners at the ore face of Creighton Mine, near Lively: they work at six times this depth.

4.5 miles

27. Try tourist offices for information on places of industrial and historical interest in Sudbury; the ecologically-



Roast beds — aerial view



ground view



D3

inclined should enquire into the Lake Laurentian Nature Centre.

7 miles

28. Half a million volts. That's the efficient way to carry electricity in bulk. The highway passes under two massive, extra-high voltage (EHV) transmission lines. They link Sudbury and hydro-electric generators on northern rivers with the rest of Ontario, cutting a swath through the landscape to Kleinberg, near Toronto. Nevertheless, EHV has meant less land needed for right-of-way.

3.5 miles

29. Wahnapeitei River was among the first northern rivers to be harnessed for hydro-electric power. At the turn of the century, electrical power had to be generated close to its consumers, for long-distance transmission had yet to be developed.

16 miles

Sudbury Detour

(Round trip total: 23 miles or 37 km)

This short detour will take you through a devastated landscape, past major industrial complexes, and into an area with fascinating relics of the ice age. To start, turn north at Coniston towards Garson; you can return on Hwy 541 to Sudbury.

2.5 miles from Hwy 17

- D1 Caught between smelters to the south and north-east, this area was fumigated frequently. Some of the smelters have since closed down, and the area is now one of the main targets for reforestation.

3.5 miles

- D2 If you visit Falconbridge Mine, you will pass extensive tree plantations. The preferred tree is Carolina poplar, a fast-growing hybrid that copes with degraded environments better than our native species.

2.0 miles

- D3 Highway 541 follows a glacial river bed or esker. The formation yields vast quantities of gravel and sand from several pits.

3.0 miles

- D4 The high land here is an old river delta, dumped into glacial Lake Vermilion. Ice shaved the top in a brief return to form an elevated plateau; it makes a good airport. Finally retreating, the glacier left huge chunks of ice embedded along the airport delta. As the chunks melted, deep holes—kettle lakes—appeared. You will find them just beyond the airport.

Sudbury's Ores

The origin of the Sudbury ore body is a mystery; one theory suggests that ore arrived as a meteorite, another that the Sudbury Basin was produced as a ring of volcanoes. The ore itself is complex, being a mixture of copper, nickel and iron sulphides.

Two wars proved nickel's potential, as a steel hardener for armour plating. Today, nickel is at the core of our way of life: as an ingredient of stainless steel and other tough alloys, it is indispensable for buses, cars, aerospace industries, shipping, fuel transport, fertiliser and food processing, Toronto City Hall and "silver" change in your pocket. Copper was known to man at least 10,000 years ago. When he mixed it with tin, man entered the Bronze Age, and the die was cast for his technological and urbanized future. Nowadays, copper is important as a conductor of electricity and heat, and, as pipes, of water.

Together, nickel and copper yield over a third of Ontario's \$1.6 billion income from minerals. Sudbury produces over half of the world's nickel, and a third of Canada's copper; it is a major source of iron ore and is the world's largest producer of platinum.



Nipissing Terrace

(Hagar–Laronde Creek: 42 miles or 67 km)

Initially in the clutches of the Shield rocks, rail, road and river emerge onto a widening plain that extends eastwards from Hagar. Lake Nipissing enlarged following glaciation, inundating all the low lying land of this zone. As the water dropped to its present level, "alluvial" deposits formed a level plain, the Nipissing Terrace. The clays in this zone are better drained than those in lake basins farther west, and have consequently produced better soils for farming.

The forest maintains its hold on shallow soils of rocky ridges, as in the west end of the zone and along the sides of the Veuve Valley. Again, pioneer species are to the fore, although the drier ridges are dominated by pines. The topography obviously influences road and rail routes, but these routes, in turn, have had tremendous impact on the landscape. Indeed, roads and railways are among the strongest ecological factors of modern landscapes, for it is through them that man reaches and removes his resources. And it is through travel on these routes that Canadians perceive their environment.

Blue clay, Veuve Valley



30. West of Hagar the highway squeezes into a rocky defile with the Veuve River and the CPR. The river got here first, finding the plane of weakness caused by some early sideways thrust or fault in the rock. What price a four-lane highway?

13.5 miles

31. Between Warren and Verner there is an almost continuous hedge of blue spruce and the native species, white spruce. Blue spruce comes from the Rocky Mountains of the USA. Often used as an ornamental tree, its function here is to reduce snow drifts across the highway. Differences in colour and vigour express genetic variation—variations that can often be exploited by selection for the benefit of man.

14.5 miles

32. Sturgeon Falls depends heavily on forest resources, for its sole industry is the mill on Sturgeon River. Raw materials trucked in are principally hardwood logs (ash, aspen, basswood, birch, elm and maple) from forests around North Bay, Mattawa and Huntsville, and pine chips from local sawmills. The products are corrugating medium for cardboard boxes and building

materials such as hardboard, panelling and siding. Chipping has been an important development in forest industry, for it uses the 25% waste once lost in sawmills. A chip "mountain" can sometimes be seen behind the Sturgeon Falls mill.

1 mile

33. Much of the north shore of Lake Nipissing was ceded to the Ojibewa Indians of Lake Huron. Indians farm and log on the reserve and have developed a campground; part of their shoreline is leased for summer cottages. Others work outside of the reserve, travelling as far as the pulp mill at Espanola.

5 miles

34. The highway shoots out across the Nipissing Terrace as if relieved from the confinement of its rocky shoreline route to the east. The terrace is poorly drained here, but a variety of trees cope with the wet and sometimes oxygen-deficient soils; tamarack (larch) is particularly abundant, and white and black spruce, ash, white birch, balsam poplar, trembling aspen, alder and willow are common. The pines towards Sturgeon Falls are Scots pine, hardy foreigners planted as snow screens and shade trees.

6 miles

Lake Nipissing Shoreline

(Laronde Creek—North Bay: 13 miles or 21 km)

East of Laronde Creek, the highway is hemmed by steep bluffs to the north against the shoreline of Lake Nipissing. Only a few thousand years ago this lake was part of the "Nipissing Great Lake", draining eastwards through the site of North Bay. The earlier Lake Nipissing formed several shoreline terraces and these provide routes of communication today. The CPR and CNR lines struggle for co-existence along one of them. The terraces provide special habitats, wetter than those on the higher, rocky ground to the north. Spruce, ash and elm are common, but there are very few pines.



36

35. You can absorb the splendour of Lake Nipissing from this lookout. Champlain made his way through this lake 360 years ago; he reached Georgian Bay and turned south for Lake Simcoe. Later, the adventurous Etienne Brûlé completed our "Ecotour" by canoe along Huron's North Channel, becoming the first European to see Lake Superior. This lake is one of the best walleye fisheries in North America, and contains a blue variety once common but now extinct in Lake Erie.

5.5 miles

36. Ready for a break? Try a 20-minute hike around the Duchesnay River, crossing the footbridge upstream. But tread carefully—the path is steep and slippery in places. This is a typical Shield river, tumbling down whatever course it inherited from the ice-age. You will find a good selection of trees of this region, including red and white pines, white spruce, hemlock, white cedar, white birch, largetooth and trembling aspens and red maple. (For information on other trails, contact Canadore College on nearby Gormanville Road).

3.5 miles

37. North Bay commands a strategic position on road and rail routes north, south, east and west, and is a vacation, recreation and service centre. Manufacturing industries serve resource industries—over a dozen companies specialize in mining equipment. New types of forest-based industries have also appeared, producing plywoods, hardwood parquet flooring, cedar shingles and other articles from local forest materials. A mill on the by-pass uses aspen for production of building materials such as insulation boards and ceiling tiles.

2 miles to start of Ottawa—North Bay Ecotour



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Contribution to the
Man and the Biosphere
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Contribution au
Programme l'homme
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The volume and multiplicity of forest products have earned Canada a place of prominence among the forest nations of the world. But now, with a dawning comprehension of its role in the great ecological complex, Canadians begin to perceive the forest's broader value as a stabilizer of desired natural patterns and as a retreat for the relaxation and well-being of a people living in crowded cities.

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